

(Amended) 39. A method as recited in claim 38, wherein the [~~thermal control block~~
~~cool~~] cooling of the plasma processing chamber is accomplished through the same thermal control block that is able to heat the plasma processing chamber, thereby providing more uniform temperature profile to the plasma processing chamber.

(Amended) 41. A method as recited in claim 40, wherein the thermal control block further includes a [-a] thermal break element coupled between the heater element and the cooling element.

Please **ADD** the following Claim:

-- 43. A method as recited in claim 23, wherein said biasing the thermal control blocks against a portion of the plasma processing chamber includes spring biasing the thermal control blocks against a portion of the plasma processing chamber. --

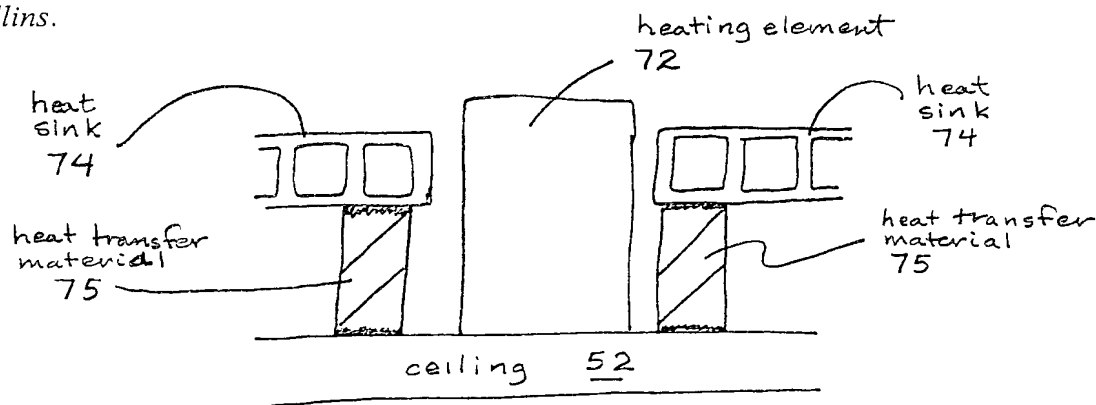
REMARKS

Again Applicant's representative thanks the Examiner for her guidance and courtesy in discussing this application on November 26, 2002. Claims 23, 26, 27, 32, 33, 35, 36, 39, and 41 have been amended (either directly or through dependence) herein and Claim 43 has been added. Claims 1-22, 24, 25, 28-31, and 34 now stand cancelled without prejudice. Therefore, Claims 23, 26, 27, 32, 33, and 35-43 are currently pending in this application. The applicants respectfully submit that this amendment places the claims in condition for allowance and also places the claims in better form for appeal. Accordingly, the applicants respectfully request entry of this amendment and request reconsideration of the remaining claims.

Rejections Under 35 U.S.C. § 103:

Claims 23-27 and 32-42 are rejected as being unpatentable over Collins, et al. EP0837489A2 (hereinafter *Collins*) under 35 U.S.C. § 103.

With respect to Claim 23, the claim has been amended to incorporate the limitations of both Claims 24 and 25. Claims 24 and 25 have been cancelled without prejudice. Claim 23 now includes the limitation of "heating the plasma processing chamber by heating a plurality of thermal control blocks that include at least a heater element and a cooling element arranged around the sides of the plasma processing chamber such that the thermal control blocks are thermally coupled to the plasma processing chamber; and cooling the plasma processing chamber by actively cooling the plurality of thermal control blocks so that the cooling is provided by the cooling element through the heating element". Applicants submit that this limitation is not taught or suggested by the cited art. In the Office Action, Figs. 5 and 17A of *Collins* and the discussions pertaining thereto are cited as standing for the proposition that chamber is cooled by cooling the chamber through the heating elements. Referring to Figs. 5 and 17A of *Collins* and the simplified depiction below, it can be seen that this is not the case. The drawing below shows that the heat sink 77 cools the plasma chamber (i.e. plasma chamber ceiling 52) by thermal conduction from the ceiling 52 through a heat transfer material 75 and into the heat sink 74. Cooling is accomplished by cooling around the heating element 72 rather than cooling through the heating element 72 (as is done in the claimed invention). In effect, the cooling of *Collins* can be accomplished whether the heating element is present or not. Such would be difficult using the claimed invention. In fact, given the positioning of the heating element 72 with respect to the heat sink 74 it is doubtful any cooling of the chamber could be accomplished by cooling through the heating element 72 of *Collins*.



Thus, *Collins* does not teach or suggest this limitation. By referring to, for example, Figure 2B of the present invention, it can be seen that the cooling is accomplished by thermal cooling through the heating element. This is simply, not the case in the cited art.

Consequently, as to Claim 23 (and the claims depending therefrom i.e., 26, 27, 32, and 43) the cited art does not establish a prima facie case of obviousness.

The same can be said for amended Claim 33, which includes a similar limitation of “cooling the plasma processing chamber by actively cooling the thermal control block so that the cooling is provided by the cooling element through the heating element”.

Consequently, as to Claim 33 (and the claims depending therefrom, i.e., 35, 36) the cited art does not establish a prima facie case of obviousness.

Also a similar limitation can be found in Claims 39 and 40. For example, Claim 39 includes the following limitation: “cooling the plasma processing chamber by actively cooling the thermal control block so that the cooling is provided by the cooling element through the heating element”.

Therefore, Applicants assert that Claim 23 (and the dependent claims 26, 27, 32, and 43), Claim 33 (and the dependent claims 35 and 36), Claims 39 and 40 are each patentable over the cited art. In particular, applicants assert that *Collins* does not teach or suggest all of the claim limitations. Thus, *Collins* fails to establish a prima facie case of obviousness. Thus, applicants request that this grounds for rejection be withdrawn as to the above Claims.

Claims 32, 36, 37-42

Claim 32 is dependent on Claim 23 and should be allowable for reasons discussed hereinabove. Additionally, Claim 32 includes the limitation of thermal control blocks that “include notches configured to prevent RF energy from coupling with the thermal control blocks.” The Office Action suggests that the *Collins* “notches” (in Figs 18 and 19 at element 1000, 1020) are used to prevent RF energy coupling with the thermal control block. This not the case. The *Collins* specification clearly identifies 1000 as a manifold “into which a thermally conductive gas such as helium may be supplied from a source 1010 under positive pressure.” There is no teaching or suggestion that such manifold is for preventing RF coupling into the manifold. Additionally, gas orifices 1020 connect to the manifold 1000 to permit helium “to fill voids in the interface”. Simply put, 1000 and 1020 are gas transfer passages, nothing more. Thus, the cited art does not teach or suggest notches for preventing RF coupling into the manifold. Therefore, for both the reasons elucidated above, *Collins* fails to establish a prima facie case of obviousness. Respectfully, it is submitted that Claim 32 is allowable.

Claim 36 is dependent on Claim 33 and should be allowable for reasons discussed hereinabove with respect to Claim 33. Additionally, Claim 36 includes the limitation of thermal control blocks that "includes notches formed therein to prevent RF energy from coupling with the thermal control block". Thus, for the same reasons set forth herein with respect to Claim 32 discussed above *Collins* is an inapplicable reference. There is no teaching or suggestion that the thermal control blocks, or notches formed therein, are for preventing RF coupling with the thermal control block as is claimed here. Thus, the cited art does not teach or suggest notches for preventing RF coupling into the manifold. Therefore, for these and other reasons, *Collins* fails to establish a prima facie case of obviousness. Respectfully, it is submitted that Claim 36 is allowable.

Claim 37 (and associated dependent claims) includes the limitation of "preventing RF energy from coupling with the thermal control block". Thus, for the same reasons set forth herein with respect to Claims 32 and 33 discussed above *Collins* is an inapplicable reference. There is no teaching or suggestion in *Collins* of preventing RF coupling with the thermal control block as is claimed here. Thus, the cited art does not teach or suggest notches for preventing RF coupling into the manifold. Therefore, for these and other reasons, *Collins* fails to establish a prima facie case of obviousness. Respectfully, it is submitted that Claim 37 (and claims depending therefrom, e.g., 38-42 are allowable).

Additionally, as to Claim 38, the cited references do not teach or suggest "including notches in the thermal control block to prevent RF energy from coupling with the thermal control block". As to Claims 39 and 40 the cited references do not teach or suggest "cooling the plasma processing chamber ... through the same thermal control block that is able to heat the plasma processing chamber ...". Nor do they teach a "thermal control block [that] includes at least a heater element and a cooling element, and wherein said cooling is provided by the cooling element through the heating element." Thus, *Collins* fails to establish a prima facie case of obviousness as to these claims.

Added Claims:

Added Claim 43 includes the limitation of "spring biasing the thermal control blocks against a portion of the plasma processing chamber". Support for this limitation is found throughout the specification and drawings. For example, at page 18: line 5-10 of the Specification. In addition to the previously discussed limitation of "preventing RF energy

from coupling with the thermal control block" it is clear that the cited art does not teach or suggest the invention claimed in Claim 43. Thus, it is submitted that Claim 43 is allowable.

Objections to the Claims:

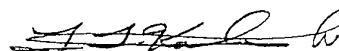
In accordance with the suggestion of the Examiner, Claim 41 has been amended to correct the informality.

Notice of Informal Application:

Pursuant to request of the Examiner, a more legible copy of the oath/declaration is attached hereto. As to the change in citizenship on the oath/declaration, that change was made by the signing inventor at the time of signature and is, thus, in compliance with the rules. Moreover, identical copies of the same oath/declaration have previously been submitted to, and accepted by, the Patent Office (e.g., in Ser. No. 09/439,675 now issued as U.S. Patent No. 6,302,966 B1) thus attesting to the sufficiency of the documents. If the Examiner so requests, a new declaration will be executed prior to issuance of this patent.

It is respectfully submitted that, in light of the above amendments and discussion, Claims 23, 26, 27, 32, 33, and 35-43 are patentable over the art of record and the present application is in condition for allowance. A Notice of Allowance is respectfully requested. Should the Examiner have any questions regarding the above amendments, or questions concerning inventor citizenship, the Examiner is cordially invited to telephone the Applicants' representative below.

Respectfully submitted,
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